

**CLAIMS**

What is claimed is:

- 1           1.       An optical cavity, comprising:  
2           a first a non-concave reflector positioned at a first end of the optical cavity, the  
3 reflector being configured to focus light that reflects off of the reflector back upon  
4 itself to avoid diffraction losses from the optical cavity; and  
5           a second non-concave reflector positioned at a second end of the optical cavity  
6 that receives and reflects light reflected from the first non-concave reflector.
- 1           2.       The optical cavity of claim 1, wherein the first non-concave reflector  
2 includes an outer layer of material that has a thickness that varies as a function of  
3 radial distance out from an axial center of the outer layer.
- 1           3.       The optical cavity of claim 2, wherein the outer layer includes a  
2 substantially convex, semispherical outer surface and a substantially planar inner  
3 surface.
- 1           4.       The optical cavity of claim 1, wherein the first non-concave reflector  
2 includes an outer layer of material that has an index of refraction that varies as a  
3 function of radial distance out from an axial center of the outer layer.

1            5.        The optical cavity of claim 4, wherein the outer layer is substantially  
2    planar.

1            6.        The optical cavity of claim 1, wherein the reflectors include a plurality  
2    of material layers oriented in a stacked arrangement.

1            7.        The optical cavity of claim 6, wherein the material layers have different  
2    indices of refraction than adjacent material layers.

1            8.        The optical cavity of claim 6, wherein the material layers have quarter  
2    wave optical thicknesses.

1            9.        An optical cavity, comprising:  
2            first non-concave means for reflecting light at a first end of the optical cavity,  
3            the first non-concave means for reflecting light including means for focusing the light  
4            that reflects off of the first non-concave means for reflecting light so that diffraction  
5            losses from the optical cavity are reduced; and  
6            second non-concave means for reflecting light at a second end of the optical  
7            cavity that receives and reflects light reflected from the first non-concave means for  
8            reflecting light.

1           10.    The optical cavity of claim 9, wherein the first non-concave means for  
2 reflecting light includes an outer layer of material that has a thickness that varies as a  
3 function of radial distance out from an axial center of the outer layer.

1           11.    The optical cavity of claim 10, wherein the outer layer includes a  
2 substantially convex, semispherical outer surface and a substantially planar inner  
3 surface.

1           12.    The optical cavity of claim 9, wherein the first non-concave means for  
2 reflecting light includes an outer layer of material that has an index of refraction that  
3 varies as a function of radial distance out from an axial center of the outer layer.

1           13.    The optical cavity of claim 12, wherein the outer layer is substantially  
2 planar.

1           14.    The optical cavity of claim 9, wherein the means for reflecting light at  
2 the first and second ends of the cavity include a plurality of material layers oriented in  
3 a stacked arrangement.

1           15.    The optical cavity of claim 14, wherein the material layers have  
2 different indices of refraction than adjacent material layers.

1           16.    The optical cavity of claim 14, wherein the material layers have quarter  
2    wave optical thicknesses.

1           17.    An optical device, comprising:  
2            an optical cavity including:  
3            a first reflector positioned at a first end of the optical cavity, the first reflector  
4            including a layer of material having a thickness that varies as a function of radial  
5            distance out from an axial center of the layer such that the first reflector is configured  
6            to focus light that reflects off of the first reflector to avoid diffraction losses from the  
7            optical cavity; and  
8            a second reflector positioned at a second end of the optical cavity that receives  
9            and reflects light reflected from the first reflector.

1           18.    The optical cavity of claim 17, wherein the outer layer includes a  
2            substantially convex, semispherical outer surface and a substantially planar inner  
3            surface.

1           19.     An optical device, comprising:  
2           an optical cavity including:  
3           a first reflector positioned at a first end of the optical cavity, the first reflector  
4           including a layer of material that has an index of refraction that varies as a function of  
5           radial distance out from an axial center of the layer such that the first reflector is  
6           configured to focus light that reflects off of the first reflector to avoid diffraction  
7           losses from the optical cavity; and  
8           a second reflector positioned at a second end of the optical cavity that receives  
9           and reflects light reflected from the first reflector.

1           20.     The optical cavity of claim 4, wherein the outer layer is substantially  
2           planar.

1           21.     A method for manipulating light in an optical device, comprising:  
2           reflecting light between two reflectors of an optical cavity of the optical  
3           device; and  
4           focusing the light with a layer of material having a thickness that varies as a  
5           function of radial distance out from an axial center of the layer to reduce diffraction  
6           losses.

- 1           22.     A method for manipulating light in an optical device, comprising:  
2           reflecting light between two reflectors of an optical cavity of the optical  
3     device; and  
4           focusing the light with a layer of material having an index of refraction that  
5     varies as a function of radial distance out from an axial center of the layer to reduce  
6     diffraction losses.